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ABSTRACT

This study investigated whether certain neighborhood differences affect the distribution of grades in a college classroom. Published community profile data for a sample of small, relatively homogeneous areas of Los Anglese were used to represent differences of instructional experience and expectation for college students who were members of one classroom and who resided in those areas. A step-wise computer regression analysis multiply correlated the neighborhood variables with class grades. It accounted for 63.5% of the grade variance. Results of the study areas data correlation indicated that high grades were most readily earned by: students whose neighborhoods were white and college trained, students from the North and East, students from areas which were growing in number but not yet densely populated, and students from areas which showed an absence of Spanish-named people, those recently from the South, and blacks. Low grades went to those students whose neighborhoods were densely populated, blacks, Southerners, and Hispanics. It is important to note that the students did not always live in neighborhoods predominantly like themselves, and that grades were not distributed according to ethnic membership of the student himself. It is suggested that replications of this study be conducted to help discover what the most significant neighborhood differences are for different ethnic mixes and non mixes, and for students both less narrowly selected and more narrowly selected for college admissions. (Author/AM)

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INTERACTION BOUNDARY AND THE ACADEMIC YARDSTICK

Ernest Singer Carter

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A paper prepared for a session on Educational Settings in Complex Societies at the annual meeting of the Southwestern Anthropological Association in San Francisco, April 1976.

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The concept of a Culture of Civility [1] implies for me a diverse world with a cultivated ability to interact across group barriers for mutual benefit.

The operational goal of this educational and interactional study was to see to what extent certain published characteristics of diverse neighborhoods of residence could be transformed into distribution of grades in a particular college classroom, and thus indicate comparative ability of students to meet expectations of the academic world.

We are led to expect such a relationship, by interaction theory in Anthropology, and by the Coleman Report (1966) which found that most of the variation in elementary and High School average/ scores had to be explained by family and community differences. Our study involves college students, drawn from various communities of a city and competing for grades within a single classroom. The variables brought to bear to explain their grades are features pointed to by interaction theory, that vary significantly between neighborhoods.

The Coleman study contradicted the idea that test scores would be in part a measure of the quality of school facilities. The alternative explanation, that related test scores to student attitudes and self-perception, could not be given a causal direction (Armor 1972). In our own construction, college grades are in some part a measure of the utility of the idea set that a student acquires during his lifetime regarding the expectations of the real world and of the academic milieu.

We assume that expectations based on experience will variously agree or disagree with those of the academic culture, and that any observable neighborhood difference is likely to demarcate difference of experience and expectation in some degree. The Coleman study was felt to be lacking in appropriate theory [2]. But I feel our own humanistic yet increasingly empirical science embodies some largely taken-for-granted theory which, when made explicit and operationalized can serve to guide the study of relationships between education and ethnicity as well as between specialty and interest groups of every kind.

The most elemental truism I have found in Anthropology is the idea that people interact in groups over time to arrive at whatever common understanding exists between them, that is not also common to groups everywhere, about what the world is, and what one properly does.

For primitive groups isolated geographically, linguistically, technologically, politically, and in so many ways, there is little obvious point in comparing the effectiveness of of the various dimensions of isolation that constitute their total barrier to high competency level interaction with outsiders. But to extend Anthropology's interactionist truism by testing it in contemporaneous urban society we must attempt to evaluate and compare barriers of different kinds, because for different aspects of life in cities we interact with different individuals or groups, and also, because for any one aspect of life we may have a choice between several alternate and mutually

different groups with which to accomplish our association and our commonality-forming interaction. Variables such as educational level, religion, ethnicity, occupation, and income range may for some purposes constitute separate dimensions of a total interaction barrier, and thus be barriers to common understanding. Residential environment is another dimension of difference, and it in turn is composed of several sub-dimensions of social interest, as indicated in both public and scientific print.

In this report we do not yet begin to compare various dimensions of group difference (or group definition), but merely try to evaluate the significance of neighborhood difference *per se*, in regard to college grades as a single aspect of life. The primary theory points as applied to the educational setting are: 1) that people who interact develop a common conceptual pool or culture, 2) that the academic world constitutes such a pool, 3) that entry requires successful interaction, 4) that for every individual this involves learning to transcend prior boundaries of experience and skill, 5) that interactional backgrounds differ in the difficulty they present to interaction across the boundaries that separate their participants from full academic membership, and 6) that residential neighborhood characteristics differ for individuals sometimes in ways that themselves constitute experiential differences and interactional barriers, or sometimes in ways that merely suggest the presence of barriers that remain to be identified.

Two exploratory tests were made, to bracket the area of strongest relationship. First we used federal data for the Census Tract, which is a small area of about 25 city blocks. Second, we used social evaluation data prepared by a county agency for larger rather homogeneous areas of perhaps 100 to 400 blocks. Figure 2 shows the Study Area sites used, as located within the Los Angeles County boundary line. The Census Tracts used are not mapped but listed by number, with the corresponding Study Area code and the class grade. An annotated bibliographic note lists the major features of the data sources in which the neighborhood data details may be found.[3] The neighborhood data were expressed to the computer in various interval scale forms[4] and the letter grades were expressed in the integers 0 through 4, as whole grade points.[5]

With the neighborhood data approach the only information needed from school records is, for each member of a class, his street address and his class grade. This reporter also knew the ethnic affiliation of each student, but general explanatory use of the ethnic data is not possible on the basis of this single study. Ethnic composition and grade distribution are represented in Figure 1 in a way that conceals individual details but shows blocks of students available for comparison. Note that the minority members are over-represented, compared to their frequency in the general population.

Average values and standard deviations are shown in Table 1 where they may be studied at leisure.[6] Non-zero-order correlations are shown as three-dimensional linkage structures.

In the Census Tract study correlations note (Fig. 3a) that the % White has a strong inverse correlation with both % Black (-.95) and % Other (-.80). Spanish % and % Spanish Foreign Born are strongly correlated (.87) but the first is mildly correlated (.24) with % White and the second is not. The strongly correlated (.90) Modal Education and Median Education correlate at mid-range (.56 and .64 respectively) with Household Population. % Black and % Other also correlate at mid-range (.60). All these variables are fairly lightly correlated (-.297 through .092 to .252) with grades. A final multiple correlation figure of .54 shows an ability of the Census Tract data to explain 30% of the variance in grades. Throughout the problem the F ratio remained below the .05 level of significance.

Turning to the Study Area data the initial correlation picture is complex because there are more variables and higher correlations as shown in the tables. The intercorrelation structure is shown in three layers for clarity. Fig. 4a shows neighborhood variables that form themselves into four distinct clusters. Fig. 4b shows all the correlations with grades, which are positive for two of the clusters and negative for the other two. Fig. 4c shows other variables not correlated with grades, but also not clearly differentiated, because the census term "Abroad" is not differentiated as to location.[7]

INTERPRETATION OF THE STUDY AREA DATA CORRELATIONS

If we follow Fig. 4 we see that high grades in this class were likely to go to students whose neighborhoods had a high percentage of college-trained people. In practice this means usually a white neighborhood, since only this feature carries a high probability of college attendance. Usually this also meant a neighborhood where new residents [8] had been from the North and East (which in turn is apt to be white and associated more strongly with college attendance). Certain newcomers from Abroad were also associated with such neighborhoods, which were likely not to be densely-packed neighborhoods. New residents were not likely to include Blacks and Others, who instead tended to reside together elsewhere. Among the college-trained there were not likely to be many who were either Spanish-named or from the South. Also, the college-trained were not likely to have lived in the same SMSA (Standard Metropolitan Statistical Area) for five years. Those who had lived in the same House for five years clearly had not at the same time come from the North and East. Neither were they likely to be either from Abroad nor from the same SMSA, nor in a Dense area. Neither was their number related at all to the percentages of White or College-trained people.

On the other end of the grade scale we have mild and equal probabilities that people in the neighborhood were Spanish-named or recently from the South, or Black, or that the population would be Densely packed. Both the Southerners and the Spanish-named were mildly negatively related to College attendance. In these neighborhoods the percentage of Blacks was most likely to

correspond to percentages from the South, first, and then to the % from Other groups, and next, to the Density, which in turn would correspond to percent recently from Abroad. Changes of population were related equally mildly and inversely to percentages of Blacks, Others, those from the South, and those from Abroad. Neighborhoods which had large increases in percent of Blacks were mildly likely to include more recent arrivals from the South. There tended not to be increases of population in these neighborhoods.

In brief, high grades were most readily earned by those whose neighborhoods were white and college-trained, or from the North and East, and growing in numbers but not yet densely populated, and with an absence of Spanish-named, those recently from the South, Blacks, and Others. Low grades went to those whose neighborhood populations were Dense, Black, Southern, Spanish, or Other.

ADDITIONAL OBSERVATIONS

It is important to note 1) that the students did not always live in neighborhoods predominantly like themselves, and 2) that grades were not distributed according to ethnic membership of the student himself. These are conjoint considerations, both of which must be true to support the contention that it is not the classificatory characteristics of the student as an individual, but a comparative advantage level, traceable in part to his neighborhood, that was in this classroom importantly associated with distribution of grades.

The approach we have used is especially suited to college-level studies where students are drawn from a massively large urban area.[9]

The BMD02R Stepwise Regression program [10] we used has good and bad features. The advantages are that it provides a correlation matrix, provides a joint-correlation figure for multiple independent variables, points to predictive errors that result from use of its best formula, and permits the order of introduction of the variables to be modified for experimental purposes. The shortcomings are 1) the formula produced is based on an assumption of linearity, 2) ordinal and nominal data cannot be treated as such, 3) the weights for the variables are presented as if they applied equally to each subgroup or individual in the sample, 4) the partial correlations depend on order of entry of the variables, and 5) the predictive formula, by being very closely fitted to the deviations of the sample as a whole, cannot be expected to apply as well to any other sample.

For these and other reasons, many replications are needed, to help discover what the most significant neighborhood differences are, for different ethnic mixes and non-mixes, and for students both less narrowly selected and more narrowly selected for college admission. For instance we note in Fig. 1 the great variability of Black grades and the absence of variability in Chicano grades. But in a classroom that was 100% Chicano the system would have to produce a normal grade distribution. What neighborhood variables would then be found to correlate with the

spread of that normal grade curve?[11] Again, how would a study of Chicanos living in a barrio setting compare with a study of American Indians living in areas scattered over the city? A disadvantage of the method used is that sub-samples usually cannot be tested separately to answer these questions, because of the need to maintain sample size and normal grade distribution. We also need studies that consider students that live in areas like or unlike themselves, areas changing to become more like or unlike the student, and variables that differ in their effectiveness from group to group. Ease of obtaining the data should encourage such replication.

INTERPRETATION OF FINDINGS

There is no such thing as proving that a statistical relationship has as its cause, the forces, entities and relationships named in a particular theory. In the interactionist domain we have two interesting alternative levels of explanation, but first we may mention two objections that might be made to our approach.

1. We are actually studying relationships of data from a sample of the neighborhoods of Los Angeles. Never mind that a student from a given classroom lived in each one of those neighborhoods. It may be that we would find those same data relationships with any sample we might blindly choose from the Los Angeles area.

2. If the neighborhood data interrelationships are not new, maybe their relation to grades is also not unique. Perhaps we would find them related to many other measures of social success.

But to complain in these ways would merely emphasize the

the pervasiveness of the situation presented in our theory, and not deny it.

In documenting a link between area data and individual grades in a classroom we offered as explanation a process in which individual expectations were formed in interaction with people and things in a particular part of town. But this may be only a minor facet in the much broader historical process by which the expectations of the academic world itself came to be formed within an isolated interactional sphere accessible to certain portions of the human population and not to others. In this longer view, the educational institution is a product of a multidimensional isolation we are not yet prepared to precisely specify; and as a functional consequence and component of a system embodying isolation, probably an important force in maintaining that isolation. In this scheme, ethnic desegregation of students appears as an almost trivial response to the total interactional requirement for a more wide-spread participation in education's total makeup, if/equality is to be the goal.

educational

CONCLUSION FROM THE DATA

We have attempted to discern whether certain neighborhood differences affect the distribution of grades in a college classroom. The basis for the effort was the concept that academic professionalism is a multidimensionally distinct tradition most easily entered into by those whose whole life experience makes them least distant from it and thus confers great competitive advantage from the start of training.

This difference in life experience was in turn considered to be reflected in spatial terms by readily available statistics which describe similarities within spaces and difference between one space and another. We sense in the correlational clusters that a number of different lines of tradition are at work in distinguishably different areas. With computer analysis we coalesced a crude representation of the differential power of these traditions in helping or allowing students to match academic expectations. Because for the Study Area data the multiple correlation (.797) explains 64% of the grade variance and the F ratio is significant at the 1% level, I believe our contentions are firmly supported by the evidence brought to bear. It is true that these are gross surface data revealing nothing of the intricate inner workings of a neighborhood, yet they have their explanatory power.

FUTURE POTENTIAL

In our society it is not appropriate to expect to explain everything about individuals on the basis of data that pertains only to groups. Still it is appropriate to want to properly assess various influences so as to empirically determine which variations are truly individual and which are better explained in another way. With the method tried here, we should be able to test the individuality of differences in groups of many kinds - as long as there is a common measure in which all members participate, and a set of multiple-dimensional definers of tradition.

But the ultimate aim of such studies, in my opinion, is to discover what it is in life experience that helps us most, to cross for mutual benefit the barriers of power and tradition that statistical area differences may so often represent. To the extent that we can learn to better define the barriers, and learn to give help in interacting across them, anthropologists and educators may play a most significant part in development of a <u>future</u> Culture of Civility.

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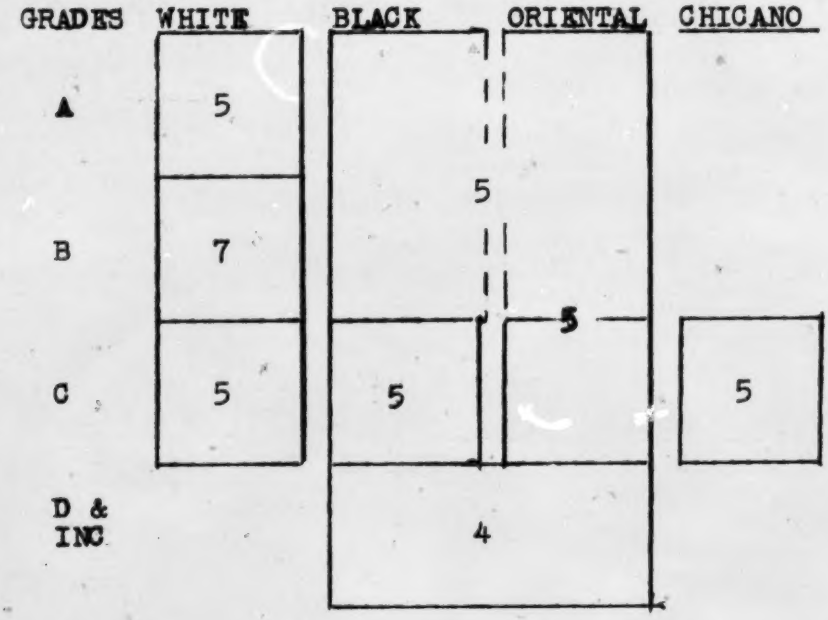


Figure 1

Class Composition and Grades

A

4639	I-7
1891	G-6
4641	K-6
1942	G-4
5320	O-1
2345	F-6
1913	G-5

B

1905	G-5
7026	B-13
1835	J-5
2017	J-1
1863	H-5
4623	I-8
4812	L-1
2182	F-7
1955	H-1
1953	H-1

D

2413	F-1
2264	F-10

IND

4823	K-3
1971	H-2

C

2017	J-1
4815	K-1
4821	K-2
5013	N-1
4821	K-2
2182	F-7
2196	F-7
2381	F-1
2016	J-1
2192	F-7
2193	F-7
2342	F-6
2161	G-2
4822	K-2
5320	O-1
2372	F-1
4820	K-2
1991	J-2

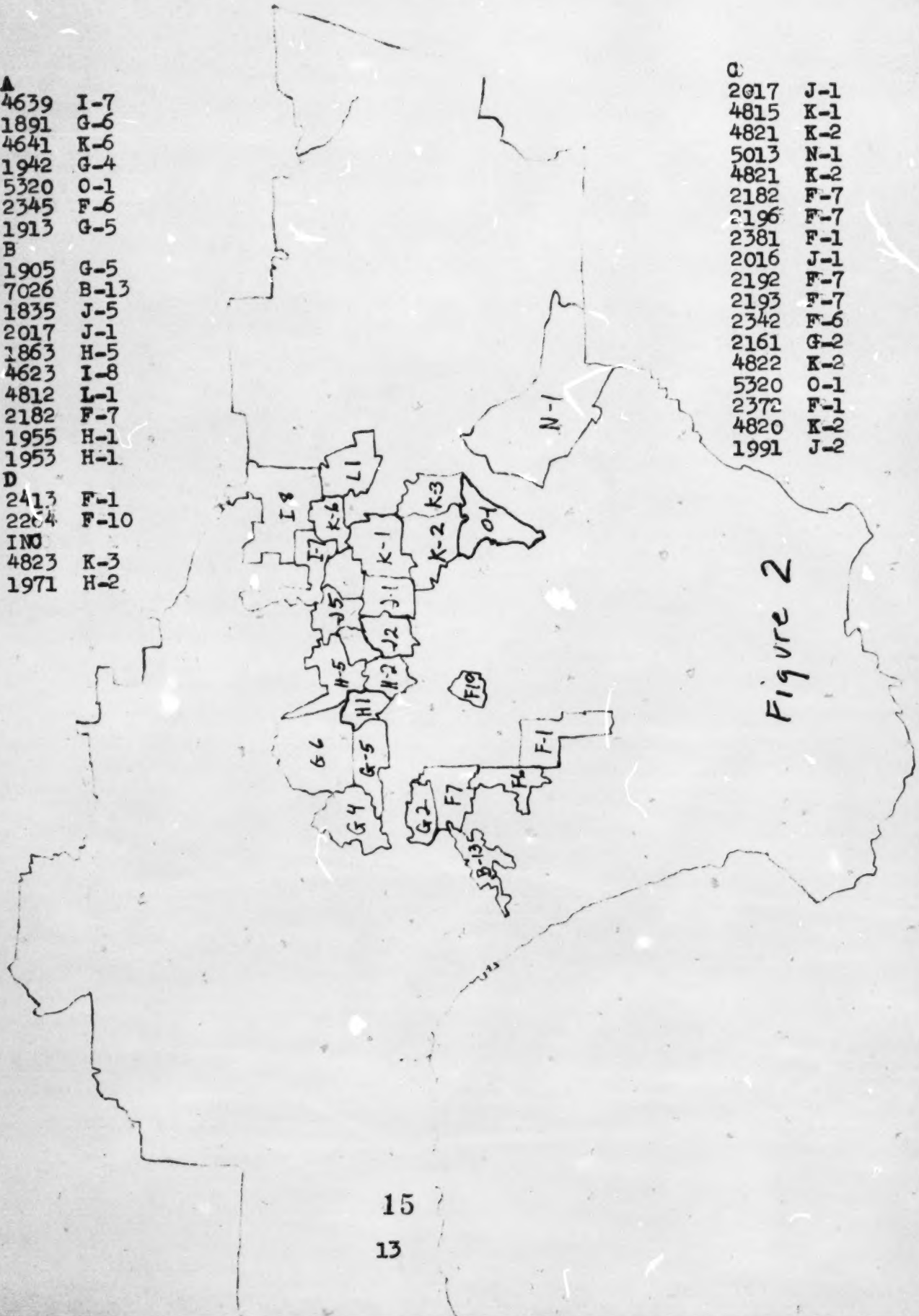


Figure 2

Figure 3a

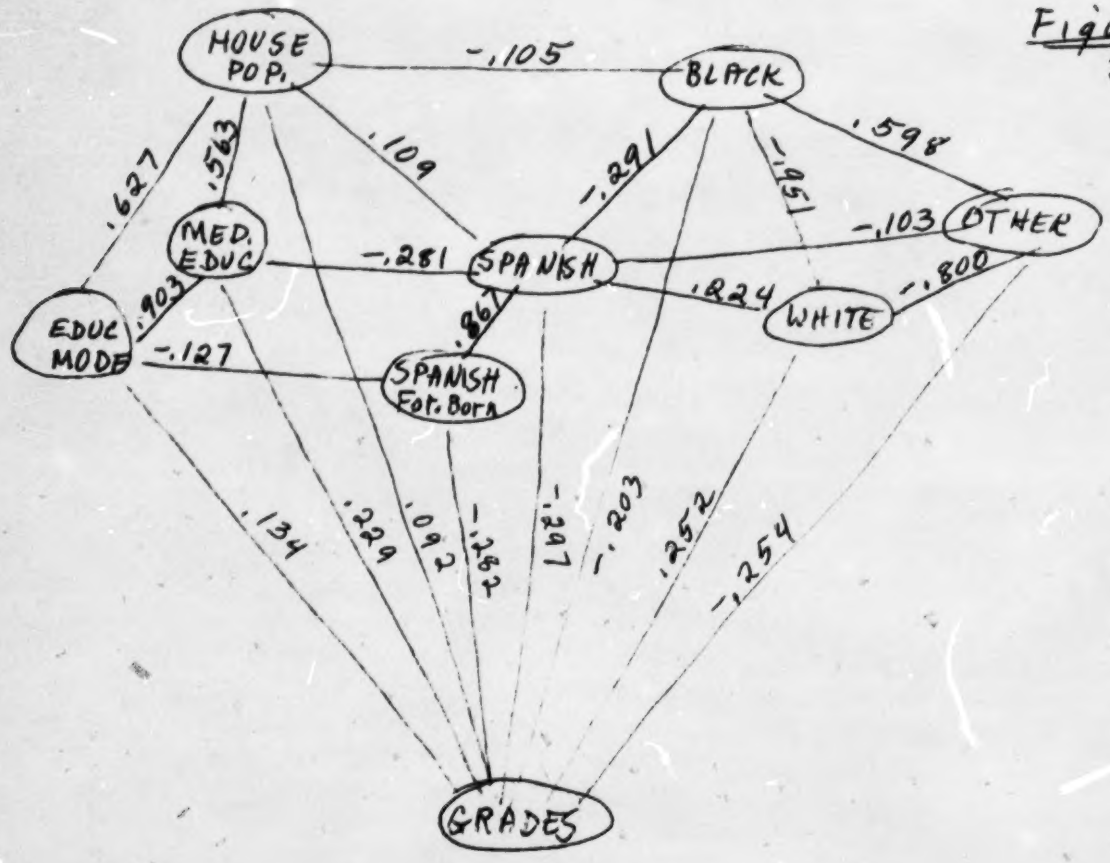
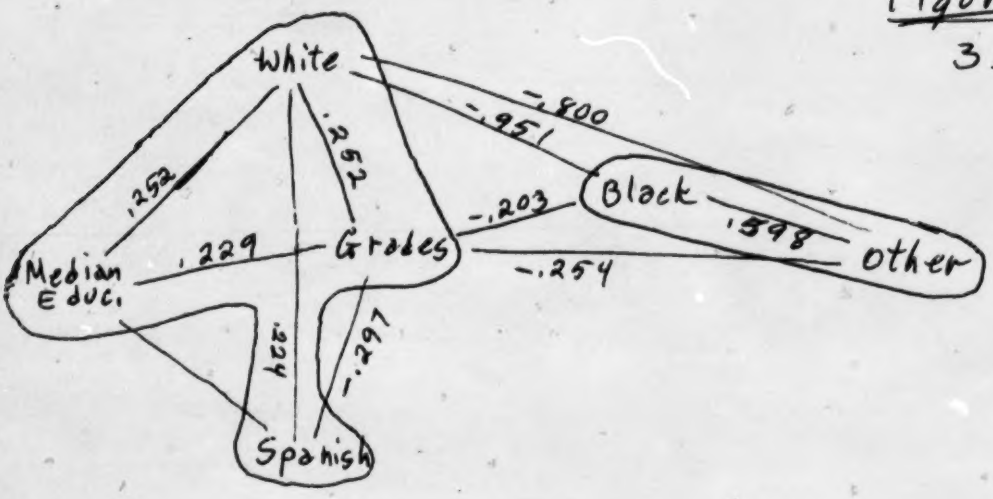


Figure 3b



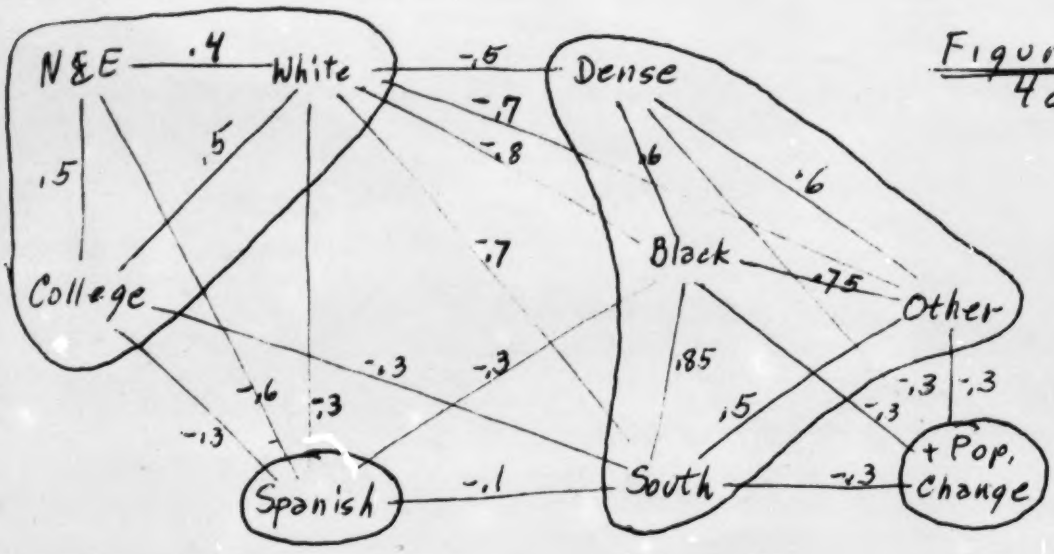


Figure 4a.

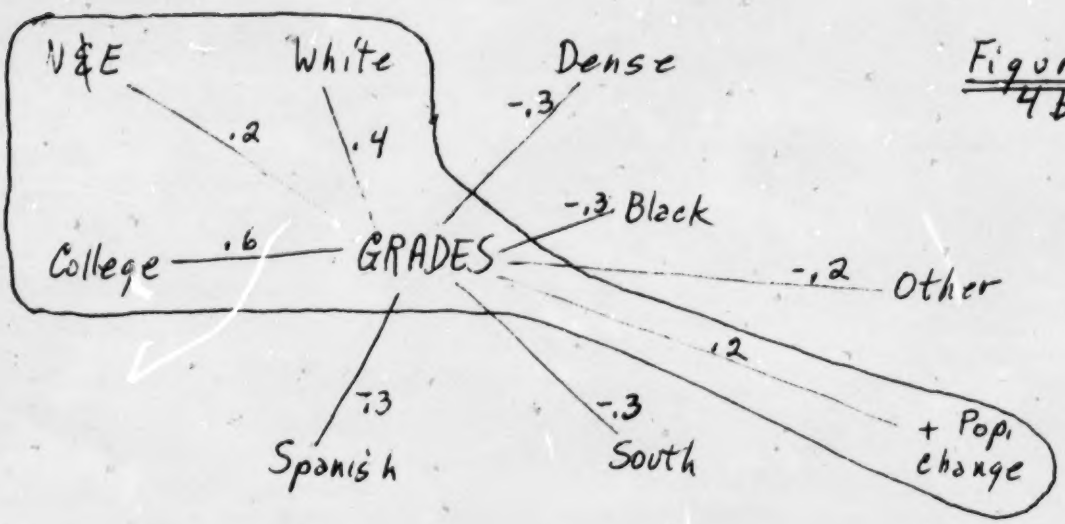


Figure 4b.

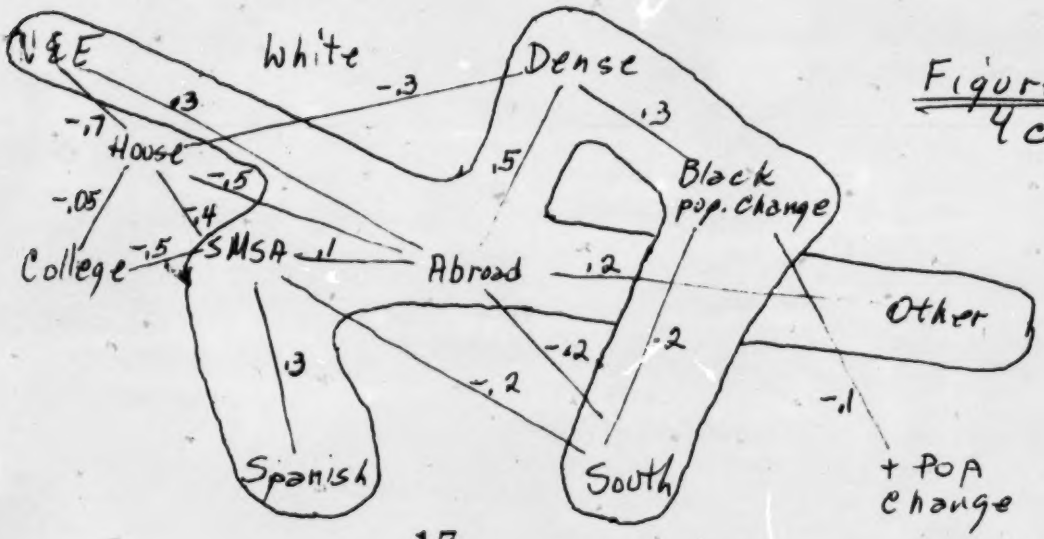


Figure 4c.

TABLE I

FEDERAL CENSUS TRACT DATA			order of entry		SOCIAL "STUDY AREA" DATA		
Coefficient at last entry (1)	MEAN (2)	Standard Deviation (3)	(4)	VARIABLES (5)	(6)	Coefficient at last entry (7)	MEAN (8)	Standard Deviation (9)
				% w/ 1 yr. of College		0.02792	24.56915	11.06025
				% in same SMSA, 1955		-0.07320	39.04092	3.12315
				% Abroad in 1955		0.60619	2.85128	1.29287
				% Change in Black pop.		0.00006	871.35584	2695.03198
				% Change in Total pop.		0.00693	11.09995	28.83951
				% in N&E in 1955		-0.21878	10.47175	2.74043
-3.57348	0.09523	0.11457	1	P Spanish %		0.10549	12.13842	12.69613
				Population/Sq. mile		-0.00017	8752.12500	3462.99756
				% in South in 1955		-0.90067	2.57692	1.42154
.85941	0.11954	0.21173	7	P Black %		0.22508	11.86152	20.07976
1.85644	0.80530	0.28674	2	P White %		0.14163	71.57428	25.26398
				% in same house, 1955		-0.10181	43.26913	6.10254
0.27052	11.77173	2.78093	3	Median yrs. of Educ.				
-0.41828	2.97205	0.96885	4	Household Members				
10.51437	0.02408	0.02939	5	P Spanish Foreign Born				
-0.12507	12.05128	2.51258	6	Modal yrs. of Educ.				
Dependent Var.	2.46154	1.02202		GRADE POINTS		Dependent Var.	2.46154	1.02202
0.51690				CONSTANT		-0.85051		
	0.06841	0.10501		P Other %	3	-0.02894	4.42820	5.42061
					10	0.00017		
18				P (See Note 13) %				19

TABLE 2

FEDERAL CENSUS DATA STUDY					↓ order of entry → (6)		SOCIAL EVALUATION DATA STUDY			
Correlation with GRADES (1)	Partial corr. at step prior to entry (2)	Cumulative Multiple Correlation (3)	% of Variance Explained (4)	(5)	Retained Variables	(7)	Correlation with GRADES (8)	Partial Corr. at step prior to entry (9)	Cumulative Multiple Correlation (10)	% of Variance Explained (11)
					% with 1 yr of College	1	0.580	-0.620	.5798	.3362
					% in some SMSA in 1955	2	-0.080	0.25510	.6159	.3794
					% Abroad in 1955	4	0.133	0.21827	.6565	.4310
					% change in Black pop.	5	0.057	0.19121	.6721	.4518
					% change in total pop.	6	0.217	0.19466	.6874	.4725
					% in N E in 1955	7	0.242	-0.20723	.7037	.4952
-0.297	-0.297	.2971	.0883	1	P Spanish %	8	-0.338	-0.20944	.7193	.5173
17					Population Density	9	-0.197	-0.31599	.7520	.5655
					% in South in 1955	10	-0.340	-0.10798	.7554	.5706
-0.203	0.05756	.5410	.2927	7	P Black %	11	-0.289	0.14739	.7615	.5799
0.252	0.35055	.4476	.2003	2	P White %	12	0.438	0.23269	.7763	.6027
					% in same house in 1955	13	-0.128	-0.28723	.7971	.6354
0.229	0.12470	.4613	.2128	3	Median yrs. of Educ					
-0.092	-0.25046	.5120	.2621	4	Household Members					
-0.282	0.15846	.5298	.2807	5	P Spanish Foreign Born %					
0.134	-0.11590	.5388	.2903	6	Modal yrs. of Education					
					Discarded Variables					
-0.254	0.01705				P Other %	3	-0.179	-0.19299	.6344	.4025
					see note 14 ↙	11		-0.23174	.7554	.5706
20					P (see Note 13) %			0.0000		

NOTES

1. This paper was prepared for the April 1976 meeting of the Southwestern Anthropological Association, in San Francisco. The meeting theme was the "Culture of Civility."

2. Mosteller and Moynihan 1972, especially armor 1972.

3. Exact details of the data are found in the following publications: U. S. Dept. of Commerce 1960 has census tract outline maps, and lists data by census tract number in columns grouped to form named regions. Los Angeles County 1965 lists the census tract number for each street address or series of addresses. Los Angeles 1964 lists data by Study Areas, using figures based on or derived from the 1960 census figures. The census tracts that compose each study area are listed. There are maps coded in five color patterns to display regional values in grouped data form. For future use, Welfare Planning Council 1970 presents single-variable value-frequency profiles for communities. Data for all variables are listed by study area. The maps are computer-drawn using one of eight darkness-symbols to separately indicate a grouped-data value for each census tract in each study area. This technique reveals present non-homogeneity in the study areas.

4. Interval-scale forms include ratios (density in persons per square mile), % or Proportion (of those having 1 or more years of College; also see variables listed in note 6), percentage

of change (in total population, and in black population), a grouped-variable value (mode-point selected from the published grouped-data scale of educational levels), an area average (household population, and a median (years of education).

5. There is a mathematical defect in the procedure that may be challenged by rigorous mathematicians. The scale of grades is ordinal rather than interval, and grouped rather than continuous.

This removes part of the evidence of continuous variability in competitive advantage that one supposes to be present in any classroom. Thus certain portions of the variability in any independent variable finds itself with no dependent-variable variability to explain. Since this has the effect of lumping the continuous variables into categories, it might be better to resort to Kendall's Tau computation, which is especially suited to ordinal scales and situations where there are many ties at the same score.

On the other hand there are two arguments that seem to be effective even though they evade this particular issue. First, the available computer program was welcomed for exploratory use despite its inability to provide ordinal-scale treatment, particularly since the present study cannot be considered definitive. Second, it is customary to treat grade points as equidistant and on an interval scale; otherwise they could not reasonably be added together and averaged.

6. Note the limited degrees of freedom in two sets of variables:

1) for the Census Tract Data, % Black, % Spanish, % White, and % Other. Also note the % Spanish Foreign Born is a subset of % Spanish.

2) for the Study Area Data, % who in 1955 were Abroad, in the Northern or Eastern U. S., in the South, in the same SMSA, and a category not used: elsewhere in the United States. Note that % in the same House is a subcategory of % in the same SMSA, since only the Los Angeles-Long Beach SMSA is considered in this study.

7. Note that % Abroad (in 1955) does not distinguish between those who came from nearby Mexico and those who came from Canada or other more distant lands.

8. The phrases "new" or "recent" or "newcomer" refer to census questions which revealed that people lived in another location five years yearlier (i.e., in 1955). This data set was used because it seemed to represent stability on one hand, and diverse experience on the other, either of which might affect grades. See note 6 regarding the non-independence of the set, which is avoided only when there are newcomers from "elsewhere in the U. S."

9. The approach could also be used for between-school studies using urban elementary and high schools.

10. See Dixon 1970.

11. One of the recommendations of Mosteller and Moynihan (1972) is development of multi-dimensional measures of achievement, as opposed to measures aimed at selection of students for traditional academic successorship. If Mexican-Americans do not compete toward this aim, in what dimensions do they proudly seek to distinguish themselves?

12. The predictive formula consists of a constant plus a series of variable values for any one class member, each multiplied by the coefficient in column 1 or column 7. See note 13.

13. Note that the "%" variables are given actual % figures in Col. 8 for the Study Area Data, but are given Proportion figures in the Census Tract Data, as shown in Col. 2.

14. "Other" may be considered to be eliminated because of loss of its degrees of freedom. That is, its percentage value has no significance beyond that of 1 minus the total of percents White, Black, and Spanish, which have already been used.

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